



D85R High Voltage Surge/High Potential/ Resistance/ Bar to Bar Tester



The D85R features the proven accuracy and reliability of over 40 years of experience in testing and adds the convenience of digital processing. The D85R represents Baker Instrument Company, an SKF Group Company's ongoing commitment to quality in the design of high performance test equipment.

The D85R is a stand alone unit specifically designed to diagnose faults in very large electrical motors and windings, improving quality in the shop and reducing unnecessary and costly downtime. The 30kV output allows you to thoroughly test large windings with lower impedance and higher capacitance. The D85R satisfies the requirements of testing the windings of both AC motors and DC armatures by producing a surge with higher voltage and higher instantaneous current.



DC ARMATURE TESTING

Bar-to-Bar Vs. Span Testing

Manufacturers and rebuilders of industrial DC motors prefer the bar-to-bar test method over Span Testing to preserve quality control. When attempting to surge test lower impedance devices (ex. Lift truck, transit, traction armatures, fields, interpoles), a tester may lack the necessary output current to achieve appropriate coil test voltage levels. The bar-to-bar method provides a higher energy insulation test than any other technique.

In the past, the Span Test method has been used to test armatures. This test compares the "spans" of several bars. Each span is defined by the number of bars necessary to increase impedance enough to generate the desired bar-to-bar voltage.

Span Test Limitations

To generate a minimum 350 volt bar-to-bar reading with a 10-Bar Span Test, the potential to ground at the first coil is 3500 volts. The higher voltage may break down the ground insulation at the first coil, and fail at testing the coils turn-to-turn.

Equalizer windings often confuse span tests. For example, five spanned bars can compare closely to nine spanned bars due to the effect of equalizer windings. When testing a low-impedance coil, the amount of voltage lost in the test leads cannot be determined.

The Bar-to-Bar Advantage

The Bar-to-Bar method overcomes span testing limitations by applying a specific controlled, lower voltage test, and measuring the surge voltage at the commutator Bar-to-Bar. The D85R provides a high instantaneous surge test current, and shifts the waveform ring frequency to a more observable rate. This method eliminates all of the significant drawbacks that equalizer windings can create during armature testing. Baker Instrument Company, an SKF Group Company's bar-to-bar test method has detected faulty windings the span test and other methods missed. The D85R offers you the latest technology available to ensure the integrity of DC armature insulation.

AC MOTOR TESTING

The "key element" of the Surge test circuit is a grounded grid hydrogen thyratron tube. The tube conducts very high peak current. Such high instantaneous currents are needed to fully test the very low impedance windings of large motors or form wound coils. This current is only produced for a few microseconds by the discharge of a 0.1 microfarad capacitor. Voltage rise time is 100-200 nanoseconds (0.1 - 0.2 microseconds), so the D85R complies with IEEE Standard 522-1992 and IEC Standard 34-15 when testing motor windings and coils.

The DC high potential test can also be done using the D85R. Test voltage is set by the output control from 500 volts up to 30,000 volts. Current is displayed and an overcurrent trip circuit monitors the test. If current exceeds the trip level, the test is automatically halted. In its most sensitive setting, the protective circuit will operate as low as 10 microamps.

The Resistance test verifies the existence of dead shorts within the turn-to-turn coils, shows any imbalances between phases due to turn count differences, along with locating poor wire connections or contacts.

The stand alone D85R is housed in a mobile case with the control unit permanently affixed to the upper face. These features along with the unsurpassed testing capabilities make the D85R the most powerful and advanced tester of its type. The three phase selector switch is standard.

SPECIFICATIONS*

SURGE TEST

Maximum Output Voltage	30,000 Volts
Maximum Output Current peak	1,800-2,000 amps
Maximum Pulse Energy	45 joules
Discharge Capacitance	.1 micro-farad

DC HIGH POTENTIAL TEST

Maximum Output Voltage	30,000 Volts
Maximum Output Current	1000 microamps
Overcurrent Trip	10/100/1000 microamps
Current Resolution	1/10/100 microamps

RESISTANCE TEST

.0008 ohms - 216 ohms

PHYSICAL CHARACTERISTICS

Weight (pounds)	305 pounds
Dimensions	24 x 55 x 26 inches
Power Requirements	110V Single Phase 1000 Watts/60 Hz

ARMATURE BAR TO BAR TEST

Maximum Voltage	3200 V (no load)
Maximum Current	10,000 amps
Maximum Pulse Energy	45 joules
Maximum Test Inductance	20 microhenries
Minimum Test Inductance	0.4 microhenries

OPTIONS

Power Requirements	220V/50 Hz
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* Data subject to change without notice. Printed in USA 06/07.



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